SYLLABUS

1. Course title:

Strength of Materials II

2. Code:

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

7. Class restrictions:

8. Duration / semester:

2 2

9. Weekly contact hours:

9.1. Lectures:	3
9.2. Seminars:	2
9.3. Laboratory/Practice classes:	0

10. Faculty:

Faculty of Mechanical Engineering

11. Department/study program:

Energy Department, Production Department, Mechatronic Department

12. Lecturer:

dr.sc. Salko Cosic

13. Lecturer's e-mail:

salko.cosic@untz.ba

14. Web site:

www.mf.untz.ba

15. Course aims:

The primary goal is to give students an understanding of the essential theoretical principles necessary to solve practical problems in the filed of strength of materials.

16. Learning outcomes:

After successful completion of the course, student will be able to analyze and solve practical problems in the field of strength of materials related to design and dimensioning of structural parts and machine elements.

17. Course content:

Introduction, contents and objectives of course,
equilibrium of solid body, differential equations
beam bending, stress/strain distributions,
ODE of deflection line, integration, special cases, superposition principle
undetermined structures, beams and frames, continual beams, Clapeyron's theorem (3M equation)
Elastic stability, Buckling of beams, critical force, Euler cases
Complex state of stress, Strength theories
Energy methods, theorems of Betty, Maxwell, Castigliano
Potential energy stationarity principles
dynamical loads
numerical methods in solid mechanics

18. Learning methods:

Lectures, exercises, seminar presentations, consultations

19. Assessment methods:

Test of theory and test in computational problems. Seminar presentation can replace test of theory. The final mark is average between both tests.

20. Assessment components:

Test of theory: 2x25 points (50 %)
Practical computational test: 2x25 points (50 %)
Seminar presentation: max 2x25 points (50 %)
Final exam: 100 points (100 %)

21. Required reading list:

1. Šimić Vice: Otpornost materijala II – Školska knjiga Zagreb 1992
2. Alfirević Ivo: Nauka o čvrstoći I Tehnička knjiga Zagreb 1989
3. Alfirević Ivo: Nauka o čvrstoći II, Tehnička knjiga Zagreb 1995 god.
4. Brčić Vlatko: Otpornost materijala, GK Bg

22. Web sources:

www.mf.untz.ba

23. Applicable starting from the academic year:

2015/16

24. Adopted in the Faculty/Academy session:

(max. 10 char.)